APPENDIX G

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February 21, 1996

Professor Stanley Wojcicki, Chair
High Energy Physics Advisory Panel
Stanford Linear Accelerator Center
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Re: HEPAP Subpanel on Accelerator Physics

Dear Professor Wojcicki,

I have received your letter of February 3, 1996 inviting a formal Basic Energy Sciences Advisory Committee (BESAC) response to your subpanel report prior to HEPAP consideration of the draft on February 27. While BESAC does not normally meet so regularly, I am pleased to report that there was a regularly scheduled meeting of the BESAC on February 5-6, 1996. We were able to add a discussion of your draft report to our agenda. After discussing the report at length, I have been instructed to transmit to you the following unanimous sentiment of BESAC.

The Basic Energy Sciences Advisory Committee (BESAC) at its February 5-6, 1996 meeting reviewed the Draft Report of the Composite Subpanel for the Assessment of the Status of Accelerator Physics and Technology. We compliment the Subpanel on documenting an excellent case for the significant contributions and wide ranging impacts that Accelerator Science and Technology have had on many areas of research, particularly those sponsored by the Office of Energy Research. The research programs sponsored by the Office of Basic Energy Sciences have benefited not only from storage rings for the production of synchrotron radiation and spallation neutron sources, but also from electron microscopes and accelerators for surface modification. In fact, the Office of Basic Energy Sciences presently supports a vigorous program of short, medium and long term research activities related to accelerator science. This program is proposal driven and peer-reviewed, as are all OBES programs. We recognize the importance of this field, as one of the many areas critical to the fulfillment of the OBES mission.

Over the years both BESAC and OBES management have struggled with the maintenance of an appropriate balance between support for facilities (planning, R&D, construction and operation) and research in the Basic Energy Sciences. The BESAC has taken an active role in advising DOE of our concerns and our analyses of this balance, but we have left to OBES management the detailed implementation of our advice.

Given this background, BESAC is deeply concerned with some aspects of an otherwise thoughtful report. One focus of our concern is Recommendation C, "The Director of OER should charge the ... advisory committees with recommending the appropriate level of ... funding for each program." Of even greater concern is the subtle elaboration of this recommendation in the "Funding" section on pages 46 and 47 of the draft report. This section gives a "suggested" OBES 1% protected accelerator related funding level for long term research. Such a recommendation made in the absence of a study of the entire program has the potential to be very counterproductive. We respectfully but strongly urge that HEPAP consider the consequences of Recommendation C before adopting the draft report of the HEPAP Subpanel on Accelerator Physics.

It is the very strongly held view of BESAC that it sets a dangerous precedent to identify any level of earmarked funding for a given area of research, unless that recommendation is taken in view of the totality of the program. A research program as diverse as that required by the mission of the Office of Basic Energy Sciences would rapidly become balkanized by such piecemeal earmarking. Our opposition to such a "set aside" is completely unrelated either to our view of the merit of accelerator research or to the need for such research in OBES. Thus, we would also be opposed (for example) to an earmarked level for the Office of High Energy Physics to support long range developments in materials science.

After considerable discussion, BESAC has concluded that it strongly disagrees with Recommendation C of the Subpanel Report. Because this recommendation is the primary substantive recommendation of the report, BESAC unanimously opposes the Subpanel Report in its current form.

We do appreciate this opportunity to express our opinion on the draft report. While the rather short notice of the HEPAP meeting precludes BESAC participation in that discussion, I believe it very unlikely that our position on this matter would have been modified by BESAC participation in the final discussion of the draft report.

If I can provide more detailed information concerning the BESAC position, please contact me.

With best wishes,

W. Carl Lineberger

W. Carl Lineberger
Chair,
Basic Energy Sciences Advisory Committee

cc: Dr. Patricia M. Dehmer
BESAC Members

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May 3, 1996

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High Energy Physics Advisory Panel
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In regard to: DRAFT Report of the Composite Subpanel for the Assessment of the Status of Accelerator Physics and Technology

Dear Professor Wojcicki:

As we discussed last month, the HERAC meeting on April 11, 1996 included time for formal consideration of the draft subpanel report provided to us in February. The draft report was distributed ahead of the meeting to all members of HERAC. As an introduction to the discussion, I highlighted aspects of the report and indicated the wording changes that had been approved by the full subpanel (this was done during the meeting as I obtained notice of the formal approval from Jay Marx, subpanel chair, on April 9, 1996). The report was discussed at length and the outline of this HERAC response was unanimously adopted during the meeting. I am transmitting to you the following statement which has been written subsequent to the meeting and has been circulated to all HERAC members, their input incorporated, and consensus achieved.

HERAC recognizes the seminal role that DOE ER (and its predecessor agencies) has played in the worldwide development of accelerator science and technology and believes that the composite subpanel has done an outstanding job of documenting and describing the achievements, scientific and societal benefits of these endeavors. As is discussed in the report, OHER does not support the R&D on, or central operations of, accelerators in any significant way and in contrast to other offices such is not a part of its mission. OHER-funded programs do, however, make extensive use of synchrotron sources for structural molecular biology (SMB) research, and a variety of accelerators for medical applications. In the synchrotron arena, OHER depends upon the excellent BES-funded programs which provide for operations of and R&D on the synchrotron storage rings. OHER funds peer-reviewed, nationally competitive programs to enable use of these storage rings for SMB research.

HERAC has a sustained interest in R&D as it relates to the core programs of OHER and periodically reviews all areas involving its instrumentation programs. Our most recent subpanel report (HERAC subpanel on Instrumentation Programs in the Medical Applications and Biophysical Research Division, November, 1995) considered among other areas the future needs for accelerator based technologies in structural molecular biology and in medical applications. Relevant to the discussion of the accelerator subpanel report was the recommendation that highest priorities should be given to full time, reliable running of existing and planned synchrotrons and providing adequate staff to support SMB users. The need for advanced R&D on instrumentation and for specialized infrastructure to facilitate use for SMB research was also identified as a high priority. The previous subcommittee report on Structural Biology (October, 1992) made substantially the same recommendations with specific proposals for implementation. Neither report identified serious shortcomings in the accelerators themselves requiring long term R&D in accelerator physics.

It is within this context of OHER's mission and programs that the HERAC discussion was set.

In the synchrotron area, HERAC believes that virtually all of the OHER-funded activities for SMB are serving "customers" for which the existing and soon to be operational BES facilities are extremely well matched to the current and projected needs. It was felt that the level of R&D investment by BES through its excellent stewardship of the synchrotron radiation facilities was more than adequate and at an appropriate ongoing level to meet anticipated needs of OHER programs even over the longer term. This investment has, and will very likely continue to meet the vast majority of the needs for SMB research well into the next decade.

HERAC felt strongly that the most productive utilization of diminishing OHER funds in the coming years is for targeted R&D in specialized infrastructure and instrumentation to enable OHER's most effective use of these facilities. This will certainly yield the most productive science programs and was felt to be the most effective way to leverage the substantial investment by the DOE that has been made in its National user facilities.

The Committee felt that it was appropriate for HEP to continue to be the driver for blue sky R&D on accelerators; that is, it holds the trust within DOE for this endeavor (with is appropriately focused on HEP related needs). HERAC would welcome the opportunity in the future to consider specific developments identified by HEPAP/HEP or other means that may have relevance to enabling significant new science in a specific area like SMB so that it (HERAC) can make recommendations for R&D funding which are considered within the totality of the BER portfolio.

HERAC is ***strongly opposed*** to any kind of "set aside" or earmarked funding that allocates some fraction of the base to a specific endeavor. Such actions will rapidly lead to fragmentation of the OHER program and ultimately reduce flexibility and ability to meet the program's strategic goals. It was strongly felt that it was not within the scope or mission of OHER to participate in such a program (recommendation B. of the report as implemented by recommendation C.). Hence, HERAC ***does not*** support these two recommendations.

We apologize for the delay in providing definitive input on our position but the subcommittee timetable for submission of the report to HEPAP would have required a response without any opportunity for discussion of the issues by the full HERAC. If we can provide further details concerning HERAC's position, please feel free to contact me and I will respond as quickly as possible.

Sincerely yours,

Keith O. Hodgson, Chair
Health and Environmental Sciences Advisory Committee

cc: Dr. A. Patrinos
HERAC Members

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May 6, 1996

Professor Stanley Wojcicki
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Dear Professor Wojcicki,

Research into and development of new accelerator techniques has always played a fundamental role in nuclear physics, from the first Cockcroft-Walton and Van de Graaff structures to superconducting cyclotrons and linear accelerators. There is no question that this research will always be vital to the future progress of nuclear physics as a discipline.

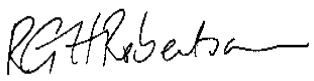
For this reason, NSAC was very pleased that the Composite Subpanel for the Assessment of the Status of Accelerator Physics and Technology was formed recently (under the aegis of HEPAP) to document the important contributions of this field and to assess means to assure its vitality in the future. We feel the Subpanel's formation provides, in itself, essential and overdue recognition of the key contributions of this area of research to many areas of science, technology, and human welfare.

NSAC has considered the Subpanel's recommendations and is in agreement with them. Specifically, in the case of Recommendation B, *"Each OER program should have proposal-driven, peer-reviewed long-range accelerator R&D as part of its research portfolio,"* and the supplementary language amplifying it, NSAC views accelerator R&D as a proper subject for basic research within nuclear science, and one that should be judged by peer review and in the context of the long-range goals of the discipline. We anticipate that the level of activity in this field will fluctuate as new ideas are identified. NSAC will, of course, respond to a charge by the

Director of OER as described in Recommendation C, taking account of the constraints imposed by the quality of proposed programs and the long-range plans for nuclear science.

We would like to convey our thanks to the Subpanel for their hard work and for the highly constructive report that resulted.

Yours Sincerely,



R.G. Hamish Robertson,
Chair, Nuclear Science Advisory Committee.

RGHR

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